

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
11 November 2004 (11.11.2004)

PCT

(10) International Publication Number
WO 2004/096148 A3

(51) International Patent Classification⁷: **A61K 38/19**,
39/00, C07K 14/52, 14/505, G01N 33/53, C12N 5/00,
15/00

Thomas [US/US]; 20 Emery Street, Mt. Kisco, NY 10549
(US).

(21) International Application Number:
PCT/US2004/013099

(74) Agents: CORUZZI, Laura, A. et al.; Jones Day, 222 East
41st Street, New York, NY 10017-6702 (US).

(22) International Filing Date: 26 April 2004 (26.04.2004)

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(25) Filing Language: English

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,
SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

(26) Publication Language: English

Published:

(30) Priority Data:
60/465,891 25 April 2003 (25.04.2003) US
10/676,694 30 September 2003 (30.09.2003) US

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(71) Applicant (for all designated States except US): **THE KENNETH S. WARREN INSTITUTE, INC. [US/US]**; 712 Kitchawan Road, Ossining, NY 10562 (US).

(88) Date of publication of the international search report:
2 March 2006

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BRINES, Michael** [US/US]; 1 Wepawaug Road, Woodbridge, CT 06525 (US). **CERAMI, Anthony** [US/US]; 49 Bramblebush Drive, Croton-on-Hudson, NY 10520 (US). **GHEZZI, Pietro** [IT/IT]; Via Mac Mahon No. 82, I-20155 Milan (IT). **FIORDALISO, Fbio** [IT/IT]; Via Lorenzo di Credi 10, I-20149 Milan (IT). **FRATELLI, Maddalena** [IT/IT]; Via Costanza 4, I-20146 Milan (IT). **LEIST, Marcel** [DK/DK]; Kloeverbladsgade 14.1, DK-2500 Valby (DK). **NIELSEN, Mette** [DK/DK]; Gladsaxevej 73.3. th, DK-2860 Soborg (DK). **SAGER, Thomas** [DK/DK]; Stormosevej 35, DK-2765 Smorum (DK). **PEDERSEN, Lars, Ostergaard** [DK/DK]; Ved Vigen 14, DK-2400 Copenhagen (DK). **GERWIEN, Jens** [DK/DK]; Haraldsgade 52, 1.tv, DK-2100 Copenhagen (DK). **COLEMAN,**

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: TISSUE PROTECTIVE CYTOKINE RECEPTOR COMPLEX, ASSAYS FOR IDENTIFYING TISSUE PROTECTIVE COMPOUNDS AND USES THEREOF

(57) Abstract: The present invention is directed methods for identifying compounds that have a tissue protective activity using a heteromultimer receptor complex that mediates the tissue protective activities. The complex consists of at least one EPO-R in complex with at least one β c Receptor. These compounds used in the assays to identify tissue protective compounds include, but are not limited to, small molecules and biologics. The compounds identified using these assays can be used to treat or prevent various diseases, disorders, or conditions of the central and peripheral nervous systems as well as those of other erythropoietin-responsive or excitable cells, tissues, and organs.

WO 2004/096148 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/13099

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 38/19, 39/00; C07K 14/52, 14/505; G01N 33/53; C12N 5/00, 15/00
 US CL : 514/2; 530/397, 399; 435/7.1, 7.8, 69.1, 325, 320.1; 424/134.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 514/2; 530/397, 399; 435/7.1, 7.8, 69.1, 325, 320.1; 424/134.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,278,065 (D'ANDREA et al) 11 June 1994 (11.06.1994), abstract; column 3, lines 1-15; column 4, line 60-column 6, line 34; column 7, lines 1-19 and lines 20-68; column 10, line 55-column 11, line 34 and lines 36-68; column 14, lines 41-64; column 18, line 50-column 19, line 3 and column 20 lines 55-64.	1-30, 33-40, 42-50, 56-80
X	US 5,997,865 (BENNETT et al) 07 December 1999 (07.12.1999), abstract; column 4, lines 41-50; column 9, lines 14-34; column 15, lines 50-66 and column 26, line 60-column 27, line 12.	52-63, 65-80

Further documents are listed in the continuation of Box C.

See patent family annex.

Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"B" earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

10 November 2005 (10.11.2005)

Date of mailing of the international search report

11 JAN 2006

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450

Faxsimile No. (571) 273-3201

Authorized officer

Regina M. DeBerry

Telephone No. (703) 308-0196